



Merck Animal Health Forecasting Project

Final Presentation

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Date: May 19th, 2016

Agenda



Topic	Presenter
1. Overview <ul style="list-style-type: none">• Introduction• Objective• Data Sources• Project Charter*	Abhishek Abhishek Anqi Anqi
2. Methodology <ul style="list-style-type: none">• Driven Factors• Forecasting Models• Forecasting Accuracy Metrics	Anqi Anqi Benjamin
3. Results <ul style="list-style-type: none">• Nobivac Sales Out• Nobivac Sales In• Activyl Sales Out• Activyl Sales In	Benjamin Shuang Shuang Wendy/Angie
4. Recommendations	Abhishek

Overview Agenda



Topic	Presenter
1. Introduction	Abhishek
2. Objective	Abhishek
3. Data Source	Anqi
4. Project Charter	Anqi

1.Introduction



- Merck & Co, Inc. (MSD) is a \$42B NJ-based pharmaceutical company operating vaccines, medications, and animal health products
- **Merck Animal Health:**
 - Second largest in the animal health industry in terms of revenue and market share; Annual revenue: more than \$3B
 - Offers veterinarians, pet owners and governments a wide range of pharmaceuticals, vaccines and health management services
- **Business Chain:**



2.Objectives



- Build demand forecasting models in the US Market
 - Given the timeline, 2 products were chosen:
 - Nobivac: Mature Product
 - Actyvyl: Proxy to newly launched product (launched in January 2013)

Objectives for these two products are:

1. Nobivac

- Forecast Sales In to determine its **driving factors**
- Use forecast models to
 - Prevent stock out
 - Avoid cost of excess inventory

2. Activyl

- Forecast the Sales In behavior for a newly launch product



3. Data Sources



Products considered:

- *Nobivac*: **Mature** product, 31 SKUs
- *Activyl*: **Newly** Launched product, 24 SKUs



SALES IN

- ***Nobivac***: Monthly from January 2013 to March 2016
- ***Activyl***: Monthly from January 2013 to June 2014

INVENTORY LEVEL

- For each Warehouse
- For actyvil and Nobivac
- In quantity

SALES OUT

- ***Nobivac***: Monthly from January 2013 to November 2015
- ***Activyl***: Monthly from January 2013 to June 2014

EXETERNAL MARKET DATA

- Total shipments accross all competitors
- In Doses converted in quantity
- Only for Nobivac

4. Project Overview - Charter



Project Description

While a forecasting system has been deployed to Merck Animal Health (MAH) US, users are in varying degrees of system adoption and some are still calculating sales and demand forecasts using MS Excel based on historical experience and judgment. The manual calculations are then entered into the system. Management would like to verify whether the system forecasts are reflective of the real demand based on market data.

Scope and Deliverables

- For selected products:
 - Design and build analytical forecasting model based on multiple drivers
 - Calculate forecasts using the model
 - Compare calculated forecasts with current forecast, current inventory on hand at the warehouse, and the production schedule at the production facility
 - Summarize key insights and recommendations



Targeted Business Value

- Inform sales and finance strategy and planning
- Input to production planning to optimize production capacity based on real market demand
- Optimize revenue by preventing stock outs on SKUs with real market demand
- Avoid cost from carrying excess inventory of SKUs without real market demand

Key Stakeholders

IT (Analytics and Supply Chain)

Product Managers

Supply Chain

Finance

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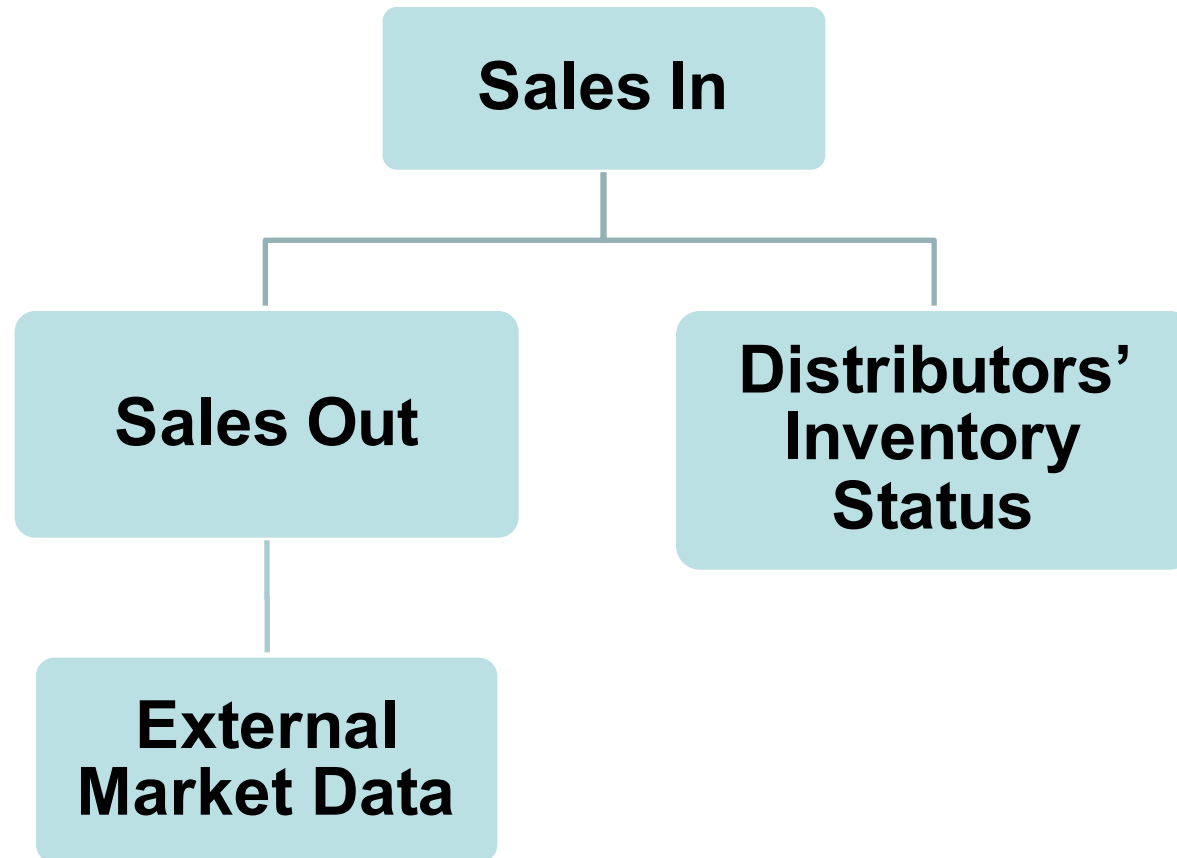
Recommendations

Methodology Agenda



Topic	Presenter
1. Driving Factors	Anqi
2. Forecasting Models <ul style="list-style-type: none">• Nobivac• Activyl	Anqi Anqi
3. Accuracy Metrics <ul style="list-style-type: none">• Demand Forecast Accuracy (DFA)• Exponential Weighted Average	Benjamin Benjamin

1. Driven Factors



* **Trend** and **Seasonality** of historical data are considered in each forecasting model

Different models can be derived based on the flow chart. For example:

- **Model 1** : Sales In is driven by Historical Sales In and Historical Sales Out
- **Model 2** : Sales In is driven by Historical Sales In and Inventory Status Forecast

Other Factors:

- Sales Out
- Vet's current inventory status;
- Customer behavior (due to extreme weather, disease outbreak, etc.)
- Sales In
- Price Competitiveness

2. Forecasting Models - Nobivac

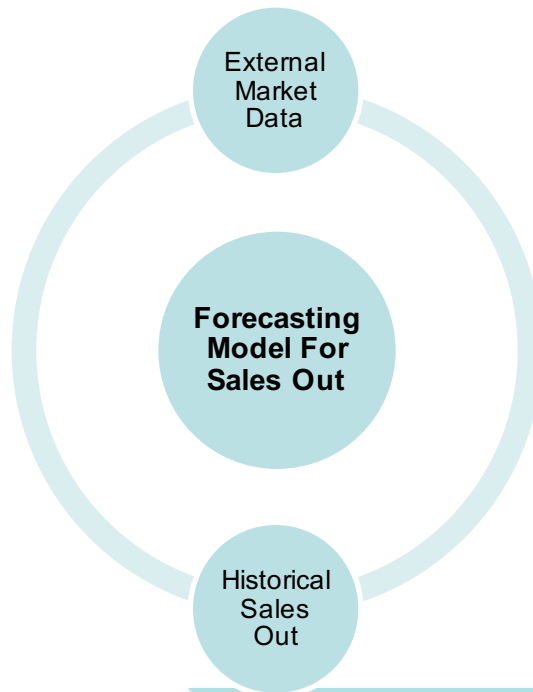


3 types of model were built to assess the **tradeoff** accuracy/time:

- **SKU-Level**: 31 models
- **Cluster-Level**: 5 Clusters formed based on correlations between Sales In quantities
- **Product-Level**: 1 model applied for every SKU

2 steps were needed for each level of forecast:

1. Forecast Sales out



- Granger Causality Test: Determine input factors
- Transfer Function Model: Cross-validation with out of sample and out of time period data to choose the best combination of factors

2. Forecast Sales In



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2. Forecasting Models - Activyl



- Previous modeling approach didn't work for Activyl because:
 - Poor quality of 2013 data
 - Few data points available for training

3 types of model were built:

- **SKU-Level** (24 models)
- **Product-Level** (1 model)
- **Cluster-Level :**
 - **by SKU type (3 models)**
Activyl® Dogs; Activyl® Cats; Activyl® TICK PLUS Dogs
 - **by SKU size (2 models)**
Activyl® 6 X 6; Activyl® 22 X 1
 - **by SKU type and size (6 models)**
Activyl® Dogs 6 X 6; Activyl® Cats 6 X 6; Activyl® TICK PLUS Dogs 6 X 6
Activyl® Dogs 22 X 1; Activyl® Cats 22 X 1; Activyl® TICK PLUS Dogs 22 X 1

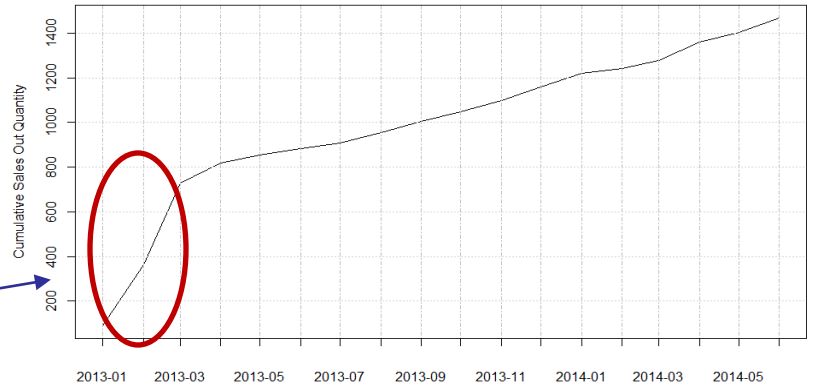
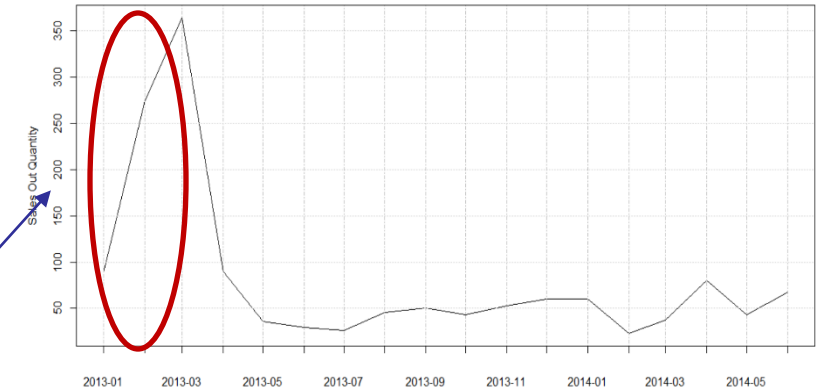
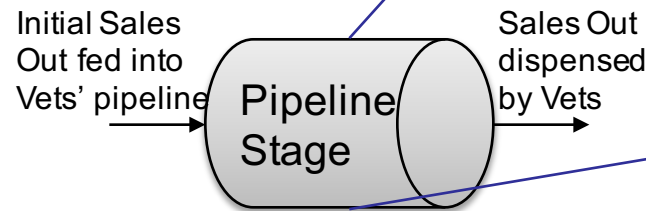
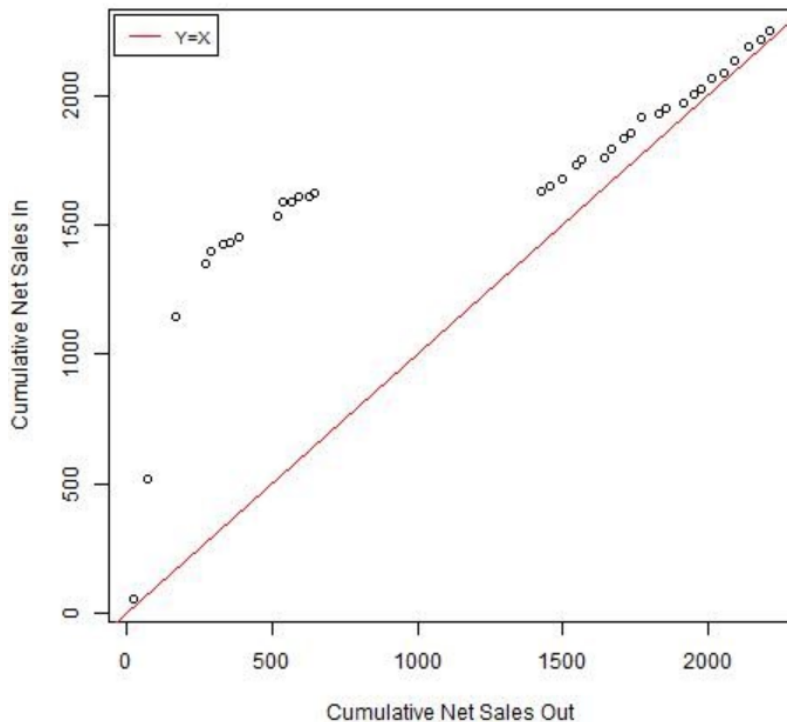
2. Forecasting Models - Activyl



- **Three steps** are needed for each level:

(Use SKU 113603: Activyl® Small Dogs/Puppies 22 X 1 X 0.77ML as an example)

1. Forecast Sales Out after removing **pipeline effects**
2. Analyze **Net Sales In** and **Net Sales Out** based on inventory data
3. Forecast **Actual** Sales In using the model of **Net Sales In**



3. Forecasting Accuracy Metrics

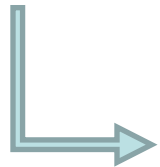


2 Forecast Accuracy Metrics were used to evaluate our models:

(1) **Demand Forecast Accuracy** = $1 - \left| \frac{2 \text{ month Forecast} - 2 \text{ month Actual Sales}}{2 \text{ month Forecast}} \right|$ →

- **Only** for Nobivac Sales Out
- To be compared with EY's current model
- **High** DFA is good (>85%)

(2) **Weighted Average** =
$$\frac{\text{Error}(1\text{st Month})/2^0 + \text{Error}(2\text{nd Month})/2^1 + \text{Error}(3\text{rd Month})/2^2 + \text{Error}(4\text{th Month})/2^3}{1/2^0 + 1/2^1 + 1/2^2 + 1/2^3}$$



- Give **more weight** to the next first month forecast
- For Sales Out **AND** Sales In
- **Low** Weighted Average is good (<20%)

Results Agenda



Topic	Presenter
1. Nobivac Sales Out <ul style="list-style-type: none">• Demand Forecast Accuracy• Weighted Average Accuracy	Benjamin
2. Nobivac Sales In <ul style="list-style-type: none">• Weighted Average Accuracy• Driving Factors Analysis• High Error SKUs Analysis	Shuang
3. Activyl Sales Out <ul style="list-style-type: none">• Demand Forecast Accuracy• Weighted Average Accuracy	Shuang
4. Activyl Sales In <ul style="list-style-type: none">• Weighted Average Accuracy• Inventory Analysis	Shuang Anqi

1. Nobivac Sales Out – Demand Forecast Accuracy



Average DFA by Month and Model:
[4-Month Forecast from Aug 2015 to Nov 2015]

$$DFA = 1 - \left| \frac{2 \text{ month Forecast of Sales Out} - 2 \text{ month Actual Sales Out}}{2 \text{ month Forecast of Sales Out}} \right|$$

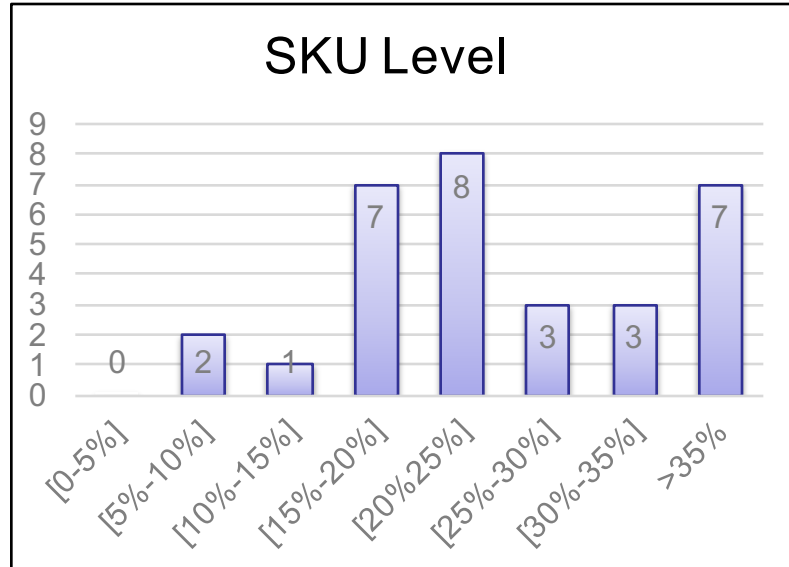
	EY Model	SKU Level	Cluster Level	Product Level
August + September DFA	80%	76%	88%	88%
September + October DFA	76%	85%	91%	87%
October + November DFA	71%	82%	86%	86%

- **Cluster Level** has the highest monthly DFA average
- Use Sales Out predictions based on the cluster level to predict Sales In

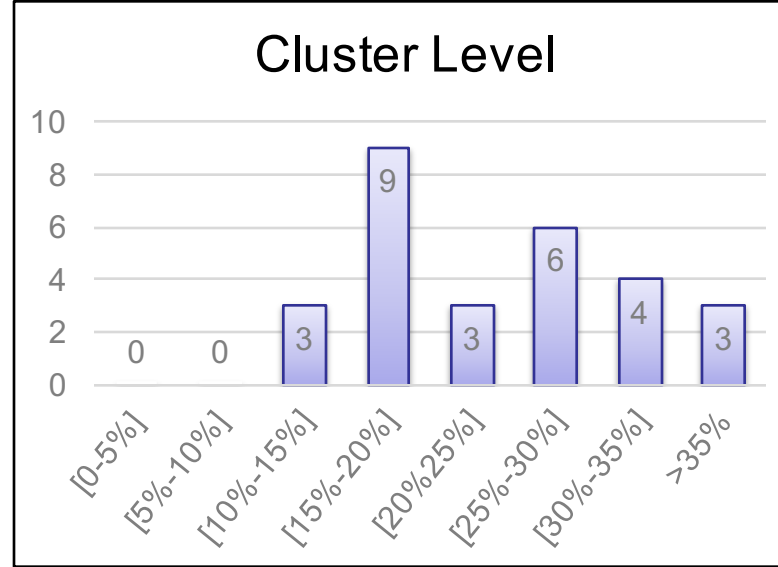
1. Nobivac Sales Out – Weighted Average Accuracy



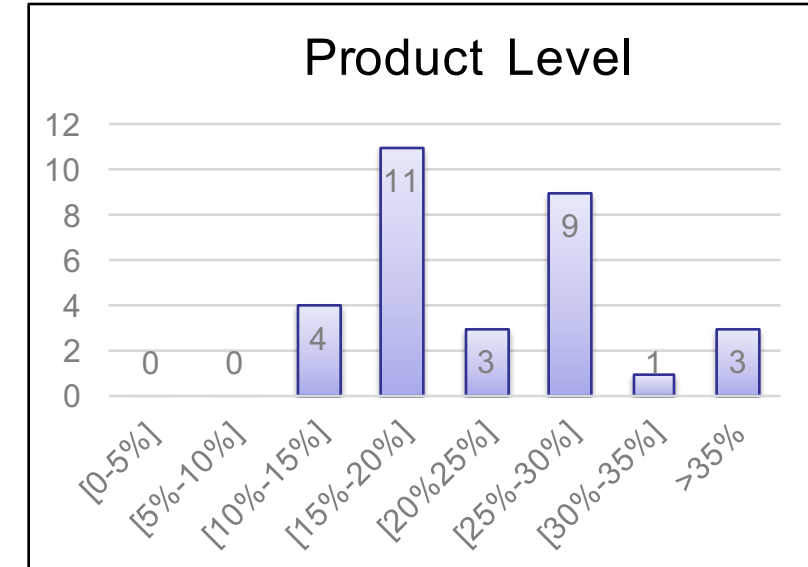
Distribution of Weighted Average Metrics across all 31 skus of each level: [4-Month Forecast from Aug 2015 to Nov 2015]



24 SKUs below 35% error



26 SKUs below 35% error



28 SKUs below 35% error

+ 3 SKUs to model individually:

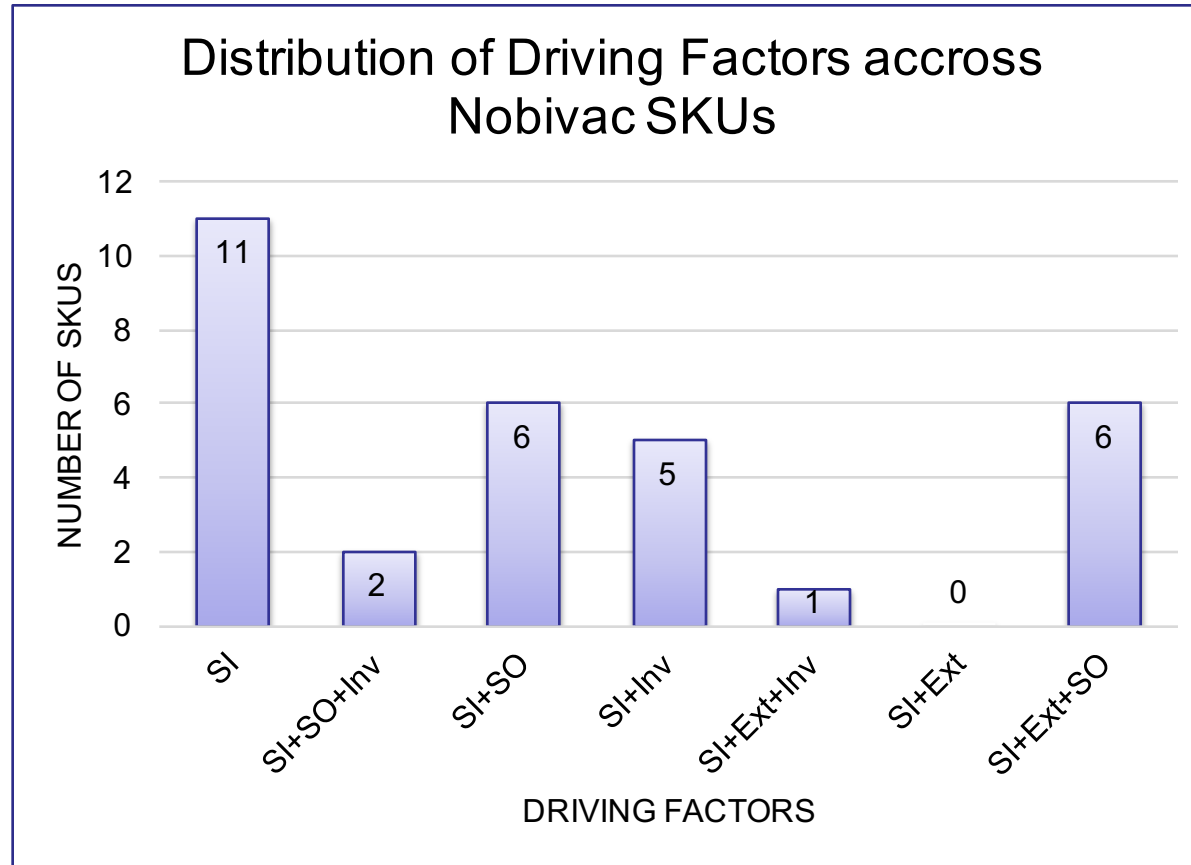
- 53260: NOBIVAC® Puppy-DPv: 27.90%
- 54097: NOBIVAC® INTRA-TRAC® KC: 38.58%
- 84987: NOBIVAC® Canine Flu H3N8: 43.94%

2. Nobivac Sales In – Driving Factors



Driving Factors:

SO: Sales Out Forecast
SI: Historical Sales In
Inv: Inventory
Ext: External Market Data



Insights:

- All SKUs use **historical SI**
- **SO** is used to predict 14 SKUs
- **INV** helps forecasting 8 SKUs :

NOBIVAC® Feline 3-HCP
NOBIVAC® Feline 1-HCP+ FeLV
NOBIVAC® FeLV
NOBIVAC® Feline 1-HCPCh+ FeLV
NOBIVAC® Canine 1-DAPPvL2
NOBIVAC® Canine 3-DAPv
NOBIVAC® Canine 1-Cv
NOBIVAC® 3-Rabies CA

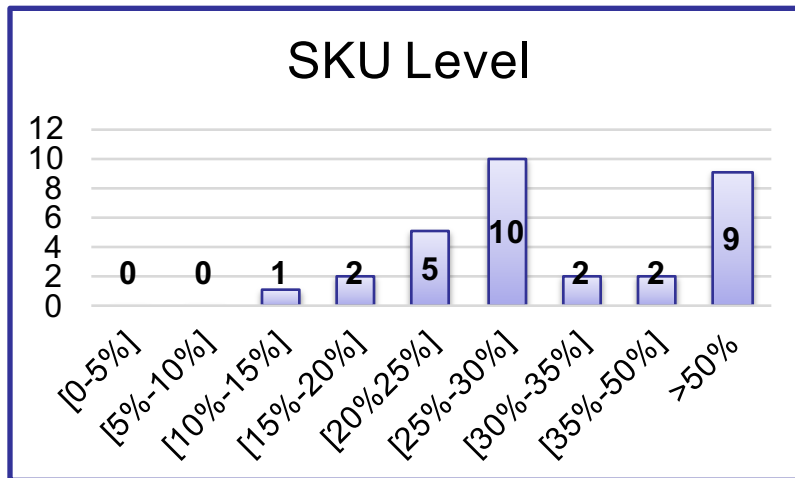
- **EXT** is used for 7 SKUs:

NOBIVAC® INTRA-TRAC® KC
NOBIVAC® INTRA-TRAC®3 ADT
NOBIVAC® Canine 1-DAPPvL4
NOBIVAC® Canine Flu H3N8
NOBIVAC® 3-Rabies CA
NOBIVAC® 3-Rabies
NOBIVAC® Feline 1-HCPCh

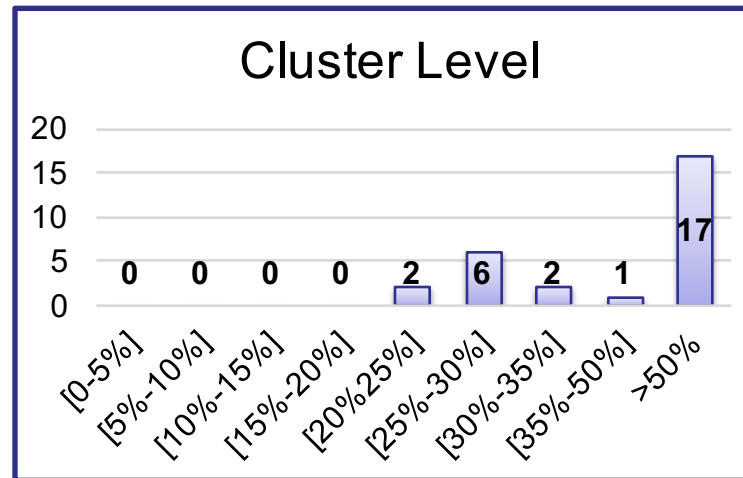
2. Nobivac Sales In – Weighted Average Accuracy



Distribution of Weighted Average Metrics across all 31 skus of each level:
[8-Month Forecast from Aug 2015 to Mar 2016]



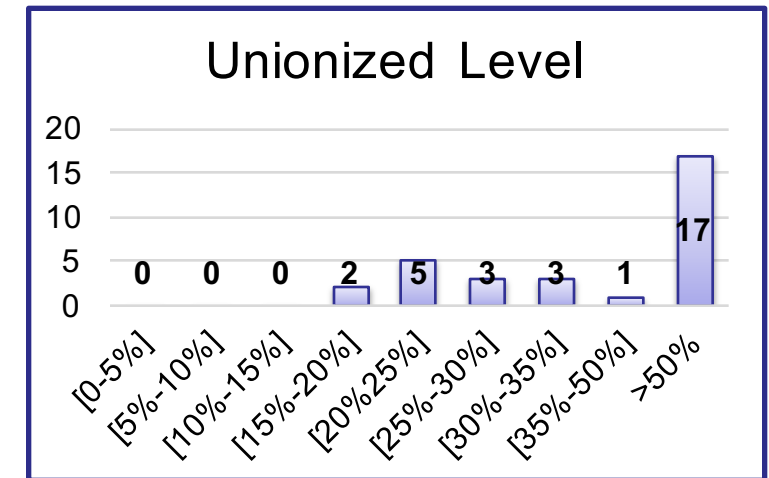
31 SKUs below 35% error



11 SKUs below 50% error

Notice: 3 “Outstanding” SKUs to model individually:

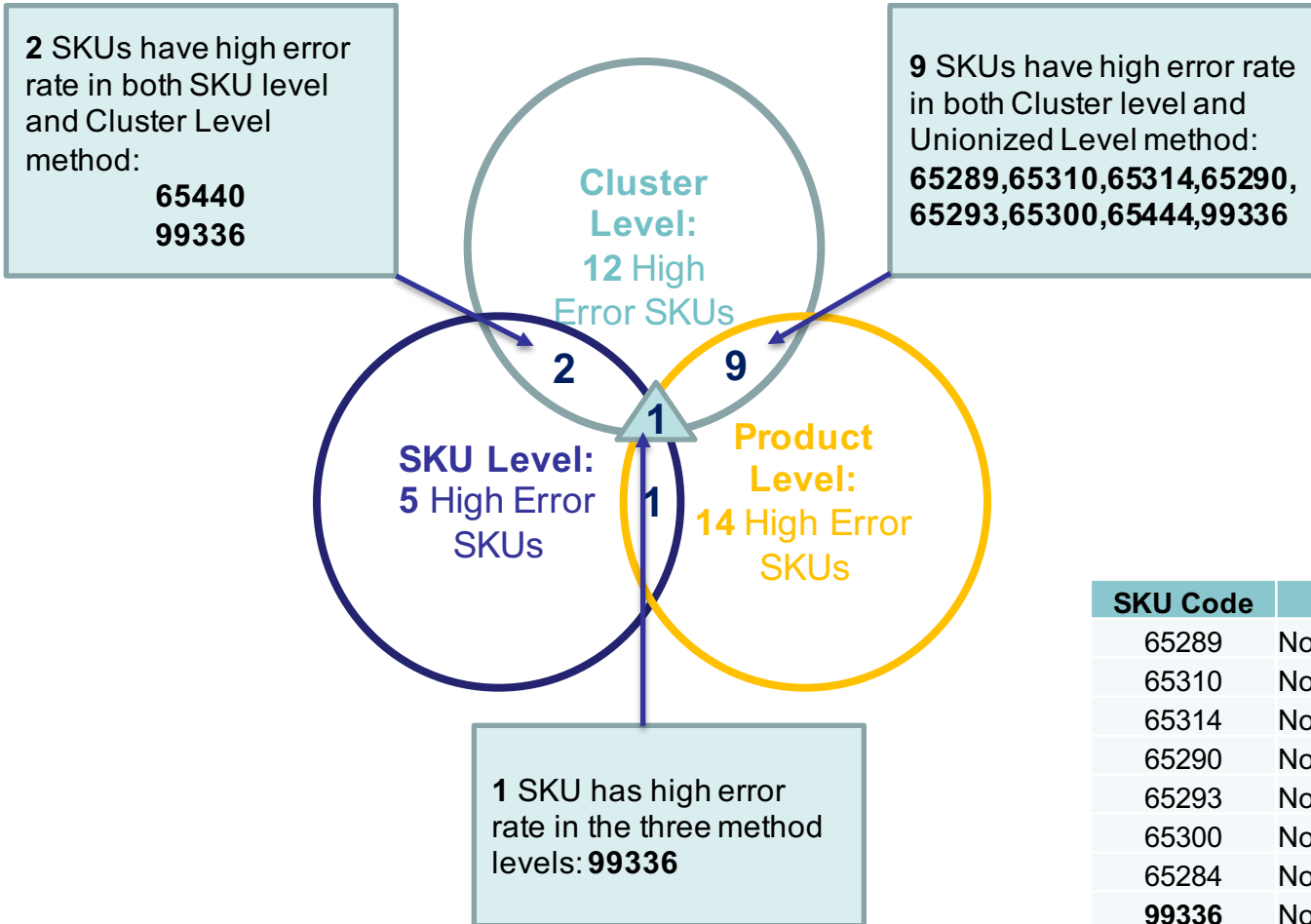
- 53260: NOBIVAC® Puppy-DPv: 22.36%
- 54097: NOBIVAC® INTRA-TRAC® KC: 82.26%
- 84987: NOBIVAC® Canine Flu H3N8: 77.56%



14 SKUs below 50% error

- SKU Level Model tends to outperform the other 2 models.
- Recommend using SKU Level model to forecast Sales IN.

2.Nobivac Sales In – High Error SKUs Analysis



Production Insights:

Comparison of actual sales in with production data shows production shortage for high error rate SKUs.

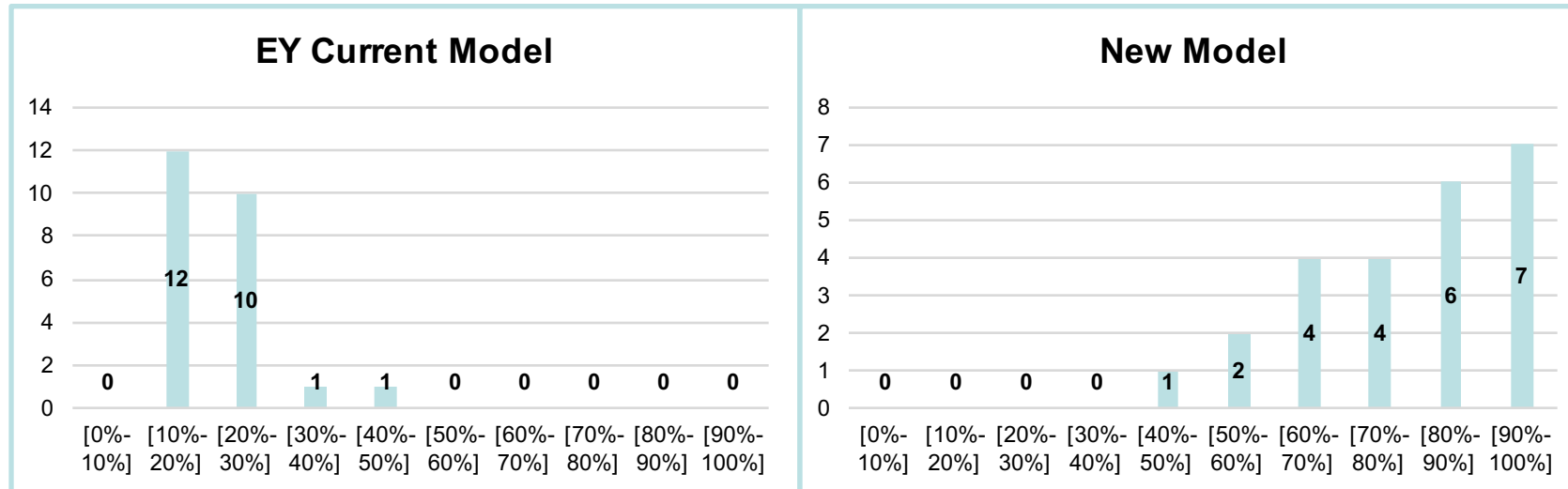
- Out of 29 SKUs, 17 SKUs were **under-produced**
 - (Notice: 2 SKUs are missing from production data)
- SKU **99336**(Nobivac Canine 1-DAPPvL4 25x1DS 229 MRK) was under-produced 75% of the time during the forecasting period.

SKU Code	Description	Over/Under Production	Percentage
65289	Nobivac Canine 1-DAPPv+CV 25x1ds 229 MRK	Under	75%
65310	Nobivac Intra-Trac 3 150 x 1 ds 240	Under	100%
65314	Nobivac Intra-Trac 3 2 x 5ds 240	Under	87%
65290	Nobivac Canine 1-DAPPvL2 25x1 ds 229 MRK	Over	50%
65293	Nobivac Canine 1-DAPPvL2+Cv 25x1ds 229 M	Under	100%
65300	Nobivac Canine 1-Pv 25x 1 ds 229 MRK	Under	87%
65284	Nobivac Canine 1-Cv 25 x 1ds 240 MRK	Under	100%
99336	Nobivac Canine 1-DAPPvL4 25x1DS 229 MRK	Under	75%

3. Activyl Sales Out – Demand Forecast Accuracy



Average DFA Distribution among 24 SKUs within 12-Month of Prediction
[8-Month Forecast from Jul 2013 to Jun 2014]



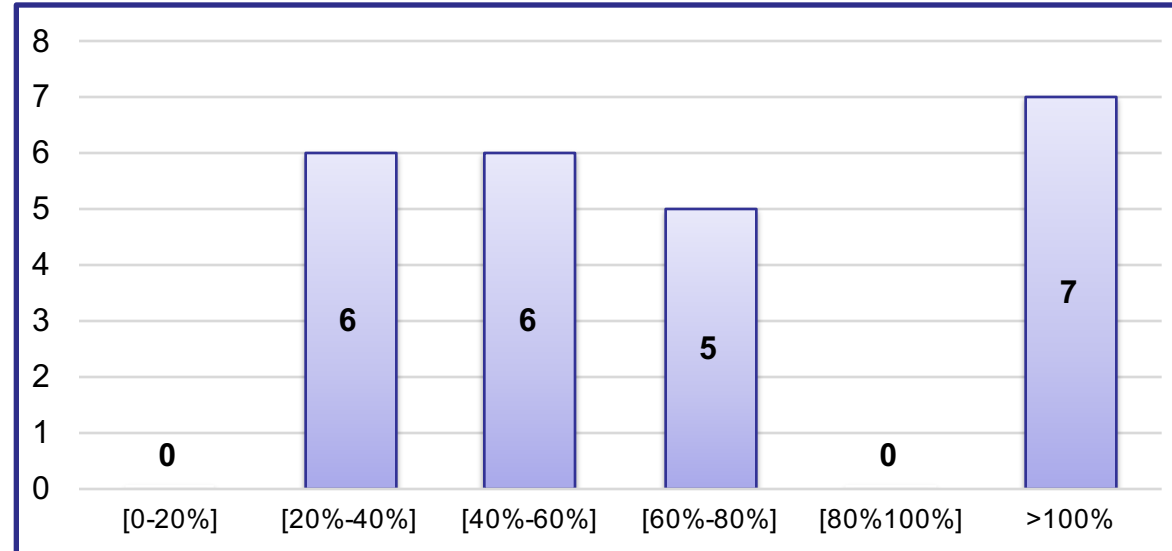
DFA:
The highest, the better

- All **24 SKUs** had at least **100%** improvements on DFA using our new model during the 11-month period.
 - (Notice, since 2 month of data were used to calculate monthly DFA, DFA is only available from Aug 2013 to June 2014.
- DFA improved percentages are ranged from **125%** to **4339%**.

3. Activil Sales Out – Weighted average accuracy



Weighted average error Distribution across all 24 Activil skus:



Same distribution for all three levels
(SKU, Cluster and Product Level)

Insights:

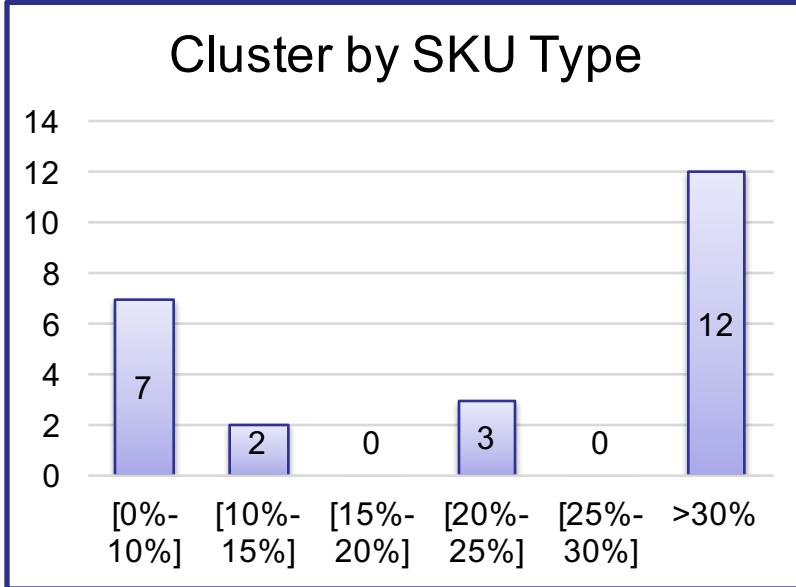
- Error Rate tends to be relatively higher than Nobivac.
- This is reasonable considering **Activil is a new product** with **limited** data.
- Overall, new model **performs better** than the current one of EY.

4. Activyl Sales In – Comparison of 3 Clustering Models

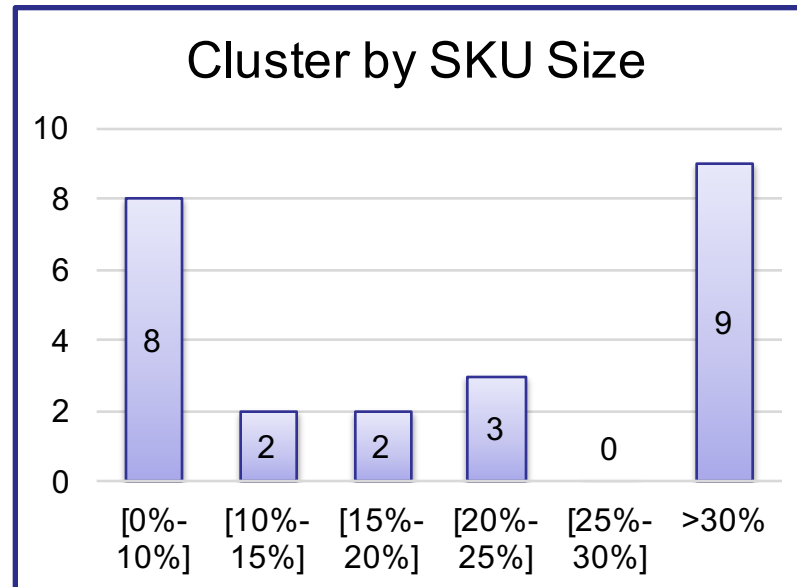


Distribution of Weighted Average Metrics across all skus of each Cluster Model:

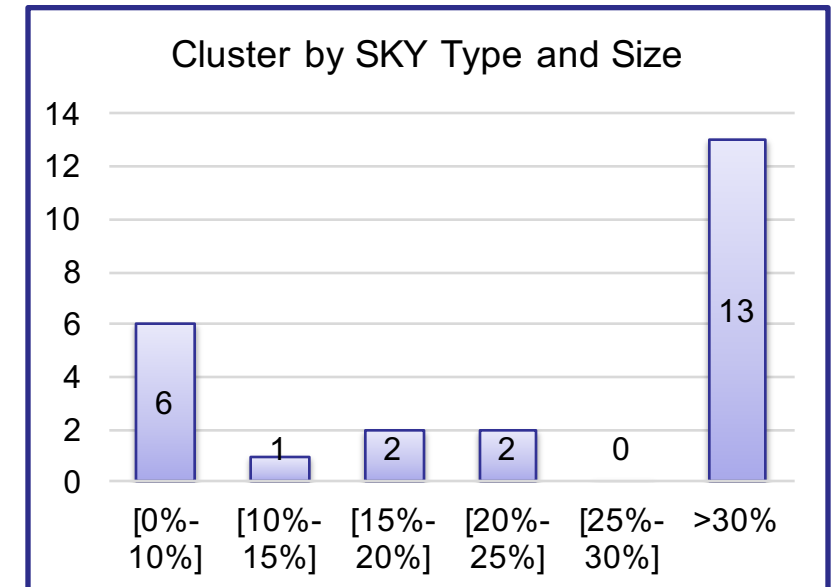
[8-Month Forecast from Jul 2013 to Jun 2014]



12 SKUs below 30% error



15 SKUs below 30% error



11 SKUs below 30% error

- Cluster by SKU size tends to outperform the other 2 clustering methods.

Notice: 4 SKUs needed to model individually:

- **115627:** ACTIVYL EXTRA LARGE DOGS 6x4.62ML 240
- **114997:** ACTIVYL EXTRA LARGE DOGS 1x4.62ML 240
- **114162:** Activyl Tick plus X-Lg Dog 1x6ml 240
- **24682:** Activyl Tick plus X Lg Dog 6x6ml 240

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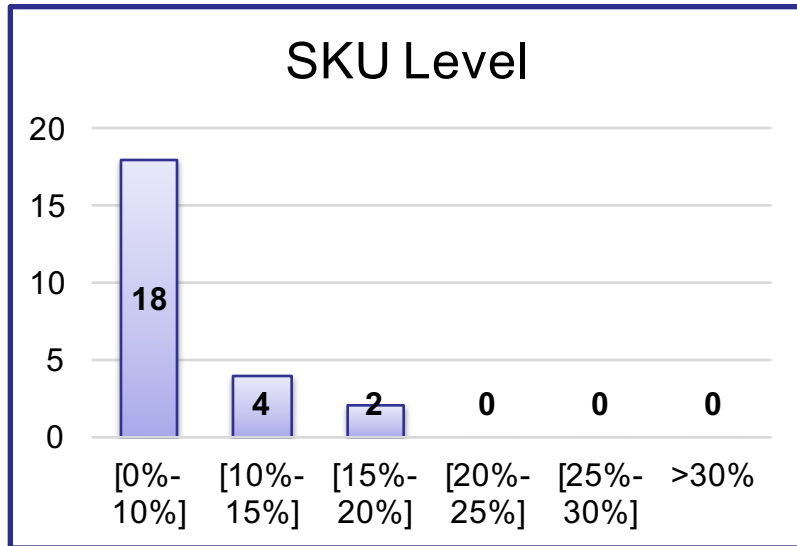
Recommendations

4. Activyl Sales In – Comparison of 3 Level Models

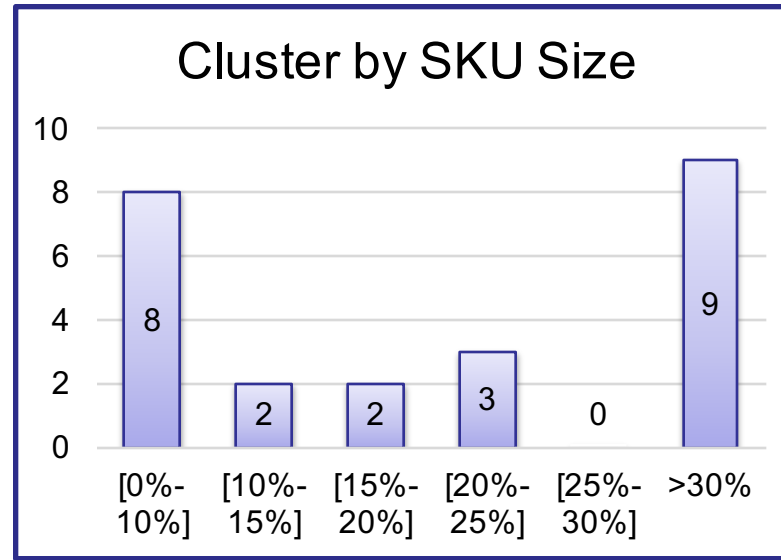


Distribution of Weighted Average Metrics across all 24 skus of each level:

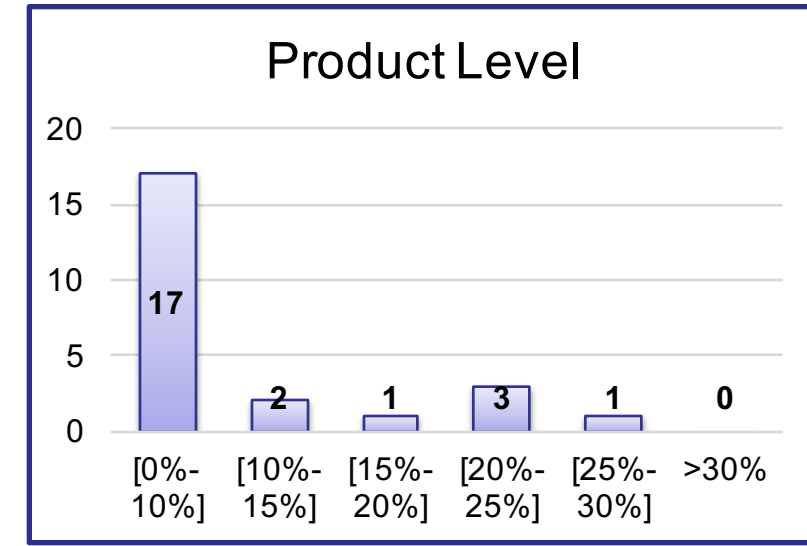
[8-Month Forecast from Jul 2013 to Jun 2014]



All 24 SKUs below 25% error



15 SKUs below 30% error



23 SKUs below 30% error

- SKU Level **outperforms** the other 2 levels.
- Recommend using Product Level model to **save time** and apply only one model

Notice: 4 SKUs needed to model individually:

- 115627: ACTIVYL EXTRA LARGE DOGS 6x4.62ML 240
- 114997: ACTIVYL EXTRA LARGE DOGS 1x4.62ML 240
- 114162: Activyl Tick plus X-Lg Dog 1x6ml 240
- 24682: Activyl Tick plus X Lg Dog 6x6ml 240

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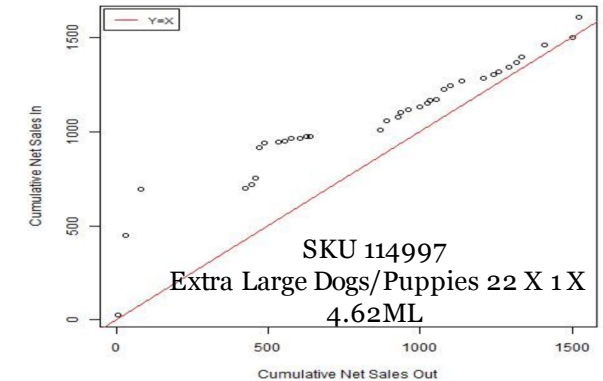
4. Activyl Sales In – Inventory Analysis



For the 4 SKUs of **Extra Large Dogs**:

Sales In follows a **zig-zag shape**

- Quantities are strongly **influenced by market demand** instead of historical values
- These SKUs should be modeled individually.



For the rest **12 SKUs of Dogs and Cats**:

Pack size determines how **Sales In** behaves:

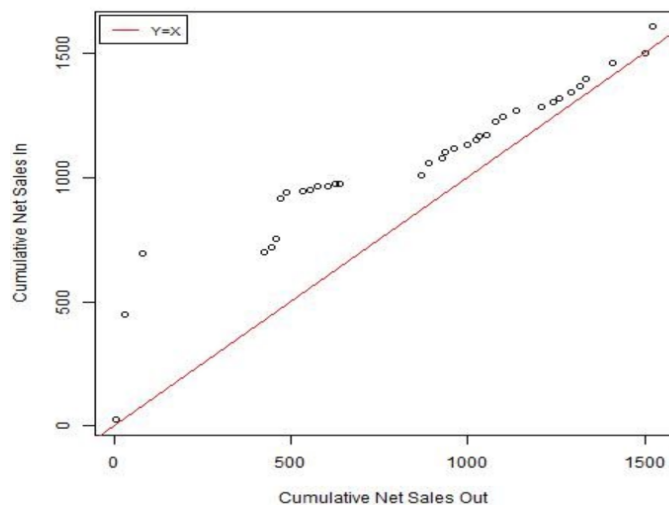
- Distributors have high expectations for SKUs with pack size 22 X 1
- SKUs with pack size 6 X 6 receives much less attention when they are launched
- Distributors tend to underestimate vets' demand of these 6 X 6 size

For **8 TICK PLUS SKUs of Dogs** :

SKU type determines how **Sales In** behaves:

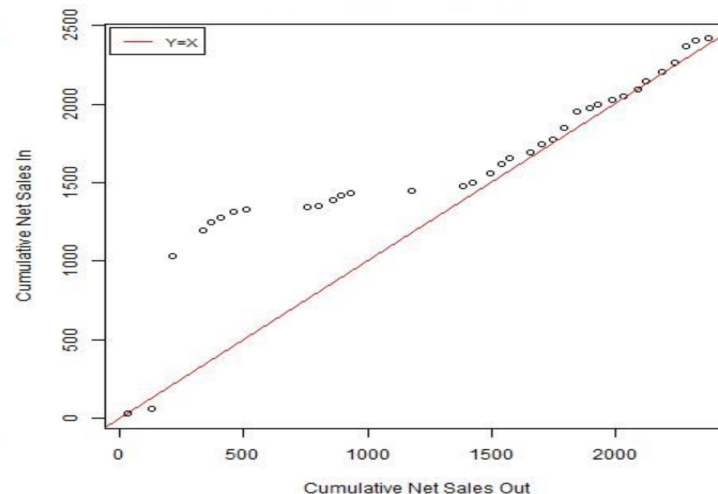
- SKUs with the same type but different pack size have similar trends in terms of Sales In.
- Distributors have a mild order policy since the product launch

4. Activyl Sales In – Inventory Analysis



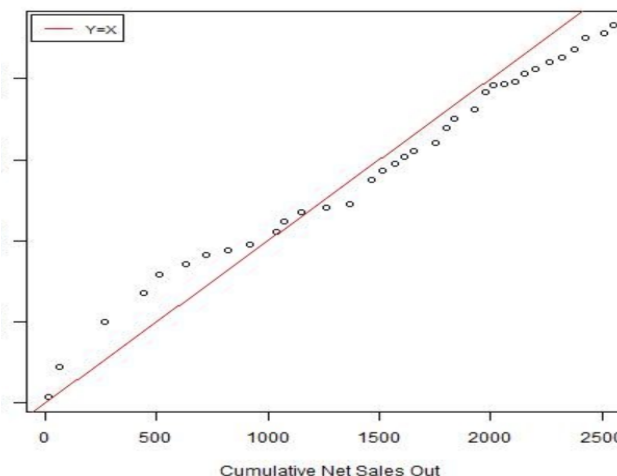
SKU 114997

Extra Large Dogs/Puppies 22 X 1 X 4.62ML



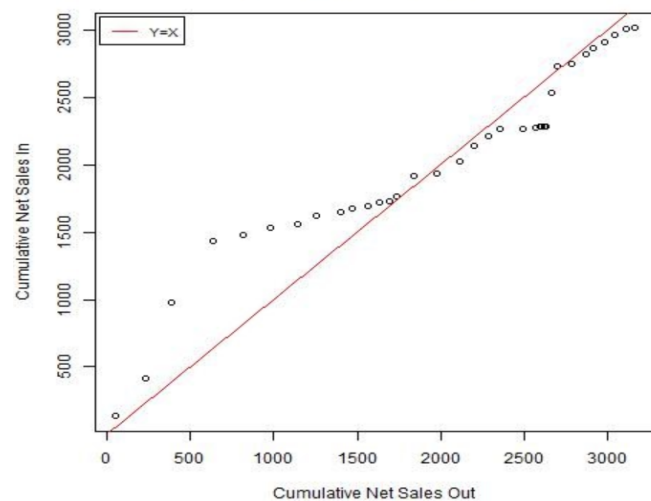
SKU 115236

Activyl® Toy Dogs/Puppies 22 X 1 X 0.51ML



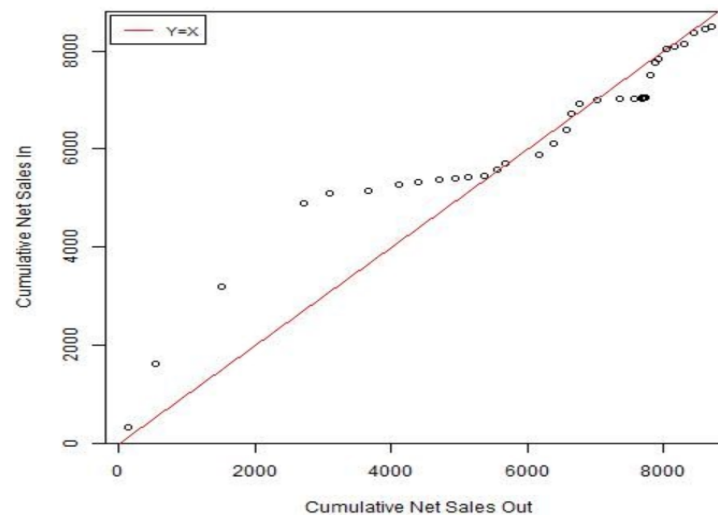
SKU 104482

Activyl® Toy Dogs/Puppies 6 X 6 X 0.51ML



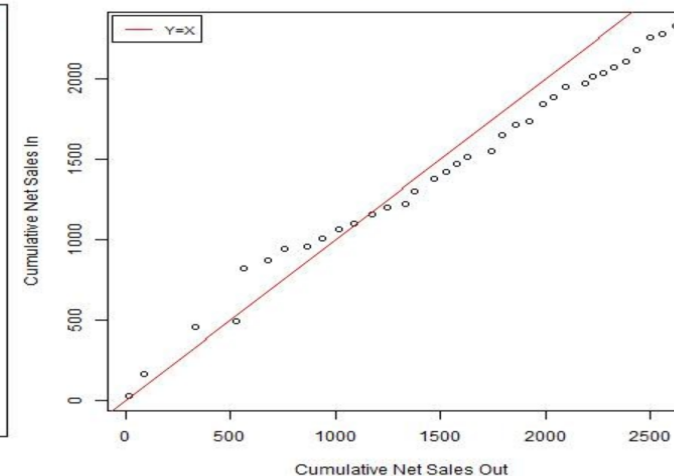
SKU 113408

Activyl® TICK PLUS Large Dogs/Puppies 22 X 1 X 4.0ML



SKU 117105

Activyl® TICK PLUS Large Dogs/Puppies 6 X 6 X 4.0ML



SKU 116338

Activyl® Large Dogs/Puppies 6 X 6 X 3.08ML



Final Recommendations - Nobivac



Limitations

- At least 25 months of data are required for both Sales In and Sales Out forecasting models.
- Special events (e.g. BOGO promotions) are difficult to be captured.

Product

- Clusters SKUs based on correlations between Sales In quantities leads to the best level model
- Cluster Level model, 3 SKUs need to be modeled separately with SKU Level model
 - Notice, these 3 SKUs tend to be high-cost/high-seasonal product.

Sales Out Model

- Use Sales Out predictions based on the Cluster Level to predict Sales In

Sales In Model

- When forecasting Nobivac, Historical Sales In and Forecast of Sales Out data are the most important driven factors.
- Recommend using SKU Level model since it outperforms the other 2 models.
- Comparison of actual sales in with production data shows production shortage for high error rate SKUs.

Final Recommendations -Activyl



Assumptions

- Accurate data since the launch time (January 2013)
- The relationship between Net Sales In and Net Sales Out reflect the relationship between actual Sales In and actual Sales Out

Product

- **Clustering SKUs based on physical characteristics** (e.g. SKU type and pack size) helps identify Sales In and Sales out behavior. SKUs with irregular demand (e.g. extra large dogs) should be considered individually.

Model

- With very few data points available, all three types of model result in the same Sales Out forecasts.
- When forecasting Sales In, both **SKU-Level** and **Unionized** model work well. If a Cluster-Level model is needed, we recommend using the **Cluster-Level model by SKU size**.
- External market data might also be an useful factor. But due to the availability of data, it cannot be incorporated in the model.

Thank you !



Questions?

Appendix – Nobivac Clustering



C1	54215	99895	65448	65447	
	NOBIVAC® INTRA-TRAC® KC	NOBIVAC® Lyme	NOBIVAC® 3-Rabies	NOBIVAC® 3-Rabies CA	
C2	54219	65266	31664		
	NOBIVAC® Feline-Bb	NOBIVAC® Feline 1-HCPCh	NOBIVAC® Feline 3-HCP		
C3	65264	65265	65277	65267	
	NOBIVAC® Feline 1-HCP	NOBIVAC® Feline 1-HCP+ FeLV	NOBIVAC® FeLV	NOBIVAC® Feline 1-HCPCh+ FeLV	
C4	65288	65289	65310	65313	65314
	NOBIVAC® Canine 1-DAPPv	NOBIVAC® Canine 1-DAPPv+CV	NOBIVAC® INTRA-TRAC®3	NOBIVAC® INTRA-TRAC®3	NOBIVAC® INTRA-TRAC®3
	65316	65440	65290	65293	65300
	NOBIVAC® INTRA-TRAC®3 ADT	NOBIVAC® 3-Rabies	NOBIVAC® Canine 1-DAPPvL2	NOBIVAC® Canine 1-DAPPvL2+CV	NOBIVAC® Canine 1-Pv
	65441	65315	6772	65284	65444
	NOBIVAC® 1-Rabies	NOBIVAC® INTRA-TRAC®3 ADT	NOBIVAC® Canine 3-DAPv	NOBIVAC® Canine 1-Cv	NOBIVAC® 3-Rabies CA
C5	68616	99336			
	NOBIVAC® Lepto4	NOBIVAC® Canine 1-DAPPvL4			
C6	53260	54097	84987		
	NOBIVAC® Puppy-DPv	NOBIVAC® INTRA-TRAC® KC	NOBIVAC® Canine Flu H3N8		

For C6, correlations < 0.5
Recommendation: Model the 3 SKUs individually

Appendix – Activyl Clustering by Type



Cluster Model 1								
	104482	112173	107502	116338	115236	113603	104695	099646
C1	Activyl® Toy Dogs/Puppies 6 X 6 X 0.51ML	Activyl® Small Dogs/Puppies 6 X 6 X 0.77ML	Activyl® Medium Dogs/Puppies 6 X 6 X 1.54ML	Activyl® Large Dogs/Puppies 6 X 6 X 3.08ML	Activyl® Toy Dogs/Puppies 22 X 1 X 0.51ML	Activyl® Small Dogs/Puppies 22 X 1 X 0.77ML	Activyl® Medium Dogs/Puppies 22 X 1 X 1.54ML	Activyl® Large Dogs/Puppies 22 X 1 X 3.08ML
	044973	118926	106980	026072				
C2	Activyl® Kitten 6 X 6 X 0.51ML	Activyl® Cats 6 X 6 X 1.0ML	Activyl® Kitten 22 X 1 X 0.51ML	Activyl® Cats 22 X 1 X 1.0ML				
	111632	104721	108760	117105	090869	113314	119643	113408
C3	Activyl® TICK PLUS Toy Dogs/Puppies 6 X 6 X 0.5ML	Activyl® TICK PLUS Small Dogs/Puppies 6 X 6 X 1.0ML	Activyl® TICK PLUS Medium Dogs/Puppies 6 X 6 X 2.0ML	Activyl® TICK PLUS Large Dogs/Puppies 6 X 6 X 4.0ML	Activyl® TICK PLUS Toy Dogs/Puppies 22 X 1 X 0.5ML	Activyl® TICK PLUS Small Dogs/Puppies 22 X 1 X 1.0ML	Activyl® TICK PLUS Medium Dogs/Puppies 22 X 1 X 2.0ML	Activyl® TICK PLUS Large Dogs/Puppies 22 X 1 X 4.0ML

Appendix – Activyl Clustering by Size



Cluster Model 2								
C1	104482	112173	107502	116338	044973	118926	115236	113603
	Activyl® Toy Dogs/Puppies 6 X 6 X 0.51ML	Activyl® Small Dogs/Puppies 6 X 6 X 0.77ML	Activyl® Medium Dogs/Puppies 6 X 6 X 1.54ML	Activyl® Large Dogs/Puppies 6 X 6 X 3.08ML	Activyl® Kitten 6 X 6 X 0.51ML	Activyl® Cats 6 X 6 X 1.0ML	Activyl® Toy Dogs/Puppies 22 X 1 X 0.51ML	Activyl® Small Dogs/Puppies 22 X 1 X 0.77ML
	104695	099646	106980	026072	111632	104721	108760	117105
	Activyl® Medium Dogs/Puppies 22 X 1 X 1.54ML	Activyl® Large Dogs/Puppies 22 X 1 X 3.08ML	Activyl® Kitten 22 X 1 X 0.51ML	Activyl® Cats 22 X 1 X 1.0ML	Activyl® TICK PLUS Toy Dogs/Puppies 6 X 6 X 0.5ML	Activyl® TICK PLUS Small Dogs/Puppies 6 X 6 X 1.0ML	Activyl® TICK PLUS Medium Dogs/Puppies 6 X 6 X 2.0ML	Activyl® TICK PLUS Large Dogs/Puppies 6 X 6 X 4.0ML
	115236	113603	104695	099646	090869	113314	119643	113408
	Activyl® Toy Dogs/Puppies 22 X 1 X 0.51ML	Activyl® Small Dogs/Puppies 22 X 1 X 0.77ML	Activyl® Medium Dogs/Puppies 22 X 1 X 1.54ML	Activyl® Large Dogs/Puppies 22 X 1 X 3.08ML	Activyl® TICK PLUS Toy Dogs/Puppies 22 X 1 X 0.5ML	Activyl® TICK PLUS Small Dogs/Puppies 22 X 1 X 1.0ML	Activyl® TICK PLUS Medium Dogs/Puppies 22 X 1 X 2.0ML	Activyl® TICK PLUS Large Dogs/Puppies 22 X 1 X 4.0ML
C2								

Appendix – Activyl Clustering by Size & Type



Cluster Model 3				
C1	104482	112173	107502	116338
	Activyl® Toy	Activyl® Small	Activyl® Medium	Activyl® Large
	Dogs/Puppies	Dogs/Puppies	Dogs/Puppies	Dogs/Puppies
	6 X 6 X 0.51ML	6 X 6 X 0.77ML	6 X 6 X 1.54ML	6 X 6 X 3.08ML
C2	044973	118926		
	Activyl® Kitten 6 X 6 X 0.51ML	Activyl® Cats 6 X 6 X 1.0ML		
C3	115236	113603	104695	099646
	Activyl® Toy	Activyl® Small	Activyl® Medium	Activyl® Large
	Dogs/Puppies	Dogs/Puppies	Dogs/Puppies	Dogs/Puppies
	22 X 1 X 0.51ML	22 X 1 X 0.77ML	22 X 1 X 1.54ML	22 X 1 X 3.08ML
C4	106980	026072		
	Activyl® Kitten 22 X 1 X 0.51ML	Activyl® Cats 22 X 1 X 1.0ML		
C5	111632	104721	108760	117105
	Activyl® TICK PLUS Toy	Activyl® TICK PLUS Small	Activyl® TICK PLUS Medium	Activyl® TICK PLUS Large
	Dogs/Puppies	Dogs/Puppies	Dogs/Puppies	Dogs/Puppies
	6 X 6 X 0.5ML	6 X 6 X 1.0ML	6 X 6 X 2.0ML	6 X 6 X 4.0ML
C6	090869	113314	119643	113408
	Activyl® TICK PLUS Toy	Activyl® TICK PLUS Small	Activyl® TICK PLUS Medium	Activyl® TICK PLUS Large
	Dogs/Puppies	Dogs/Puppies	Dogs/Puppies	Dogs/Puppies
	22 X 1 X 0.5ML	22 X 1 X 1.0ML	22 X 1 X 2.0ML	22 X 1 X 4.0ML